

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. **(Currently Amended)** A method of detecting and quantifying trace levels of molecules containing one or more of a range of reactive species[[,]] in gases or gas mixtures ~~consisting of~~ containing alkanes, ethene, or ethyne, said method including using an alkoxyalkyl cation as the chemical ionisation precursor in a selected ion flow tube mass spectrometer.
2. **(Original)** The method as claimed in claim 1, further including reacting the sample gas to be analysed with the alkoxyalkyl cation in a stream of helium in the flow tube.
3. **(Original)** The method as claimed in claim 1, wherein the alkoxyalkyl cation is a methoxymethyl cation.
4. **(Currently Amended)** A method of detecting and quantifying a gas sample containing trace levels of molecules containing one or more of a range of reactive species[[,]] in gases or gas mixtures ~~consisting of~~ containing alkanes, ethene, or ethyne in a selected ion flow tube mass spectrometer comprising the steps of: producing a supply of alkyoxymethyl cations, mass ~~electing~~ selecting the alkyoxymethyl cations, inducing a flow of the alkyoxymethyl cations into the inlet of a flow tube of the spectrometer in a carrier flow of helium reacting the gas sample with the alkyoxymethyl cations, analysing the reacted gas sample in the mass spectrometer, and calculating the concentration of the trace levels of molecules containing heteroatoms present in the reacted gas sample.
5. **(Original)** The method as claimed in claim 4, wherein the alkyoxymethyl cation is a methoxymethyl cation.
6. **(Currently Amended)** The method as claimed in claim 5, wherein the range of reactive

Applicant : McEwan et al.
Serial No. : 10/520,369
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Page : 3 of 8

Attorney's Docket No.: 15313.0002

species includes molecules that contain sulphur, nitrogen, oxygen, phosphorus or silicon
heteroatoms[[],].